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In the Supreme Court of the United States

OCTOBER TERM, 1979

SIDNEY A. DIAMOND, COMMISSIONER OF PATENTS AND TRADEMARKS, PETITIONER

v.

JOHN J. BRADLEY AND BENJAMIN S. FRANKLIN

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

REPLY BRIEF FOR THE PETITIONER

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1. Respondents contend that they have created a "unique" machine (Resp. Br. 16), different in the arrangement or combination of its hardware components from any previous machine (Resp. Br. 10–12). They argue that the Patent and Trademark Office "ignor-[ed]" this combination taken as a whole, preferring to examine and characterize "each individual element except the hardware control unit (firmware) as old" (Resp. Br. 14). The Patent Office Board of Appeals,

however, specifically found that "save for the microprogramming" the hardware arrangement, as well as each component, including the control unit (see J.A. 169), was old (J.A. 200; see J.A. 152, 182). Respondents appealed the Board's finding that the hardware combination lacked novelty (J.A. 204 #2), but the Court of Customs and Patent Appeals did not disturb that finding (J.A. 18). Accordingly, respondents bear the burden here of showing that on the Patent Office record the Board's finding was clearly erroneous. This they have not done.

Respondents do not dispute that Coulter's and Carre's Figures 1-14i, describing the arrangement of hardware in their computer machines, are identical to the respondents' (see Pet. 8-9 n.12 and Pet. Br. 11 n.17; cf. Br. in Opp. 3, 19 and Resp. Br. 39-42). All that respondents have added is Figures 15a-c. They told the Patent Office that Figure 15a illustrated the switch system base instruction whose "operation code * * * is similar to the operation code of any instruction" (J.A. 78; see J.A. 29), and that Figures 15b and 15c were "flow charts" that disclosed a "microprogram" (J.A. 138, 155, 169).

Before this Court, however, respondents claim that Figures 15b and 15c disclose "additional hardware structure" (Resp. Br. 41). They refer specifically only to one such item, "hardware gate HG, reference numerals 1507 and 1514" (*ibid.*). According to respondents' specification this hardware gate is located in "auxiliary memory 1317a of the ALU 1317" (J.A. 79) and disclosed in Figure 13a (J.A. 112; see J.A. 63). But this gate was in fact part of the computer machine disclosed by Coulter and Carre. Thus, respondents' "aux-

iliary memory 1317a of the ALU 1317" (J.A. 79) is the same auxiliary memory identified in the Carre application (page 51, lines 24–27) and Coulter patent specification (col. 25, lines 39–41) as including "64 flip-flops [hardware gates] for storing miscellaneous states of the computer system." Identical language is used to describe auxiliary memory 1317a in respondents' specification (J.A. 63). Thus, the hardware gate identified by respondents in Figures 15b and 15c is merely one of the 64 flip-flops previously described by Carre and Coulter, and by respondents in Figure 13a of their own specification, and not "additional hardware structure" (Resp. Br. 41) revealed for the first time in Figures 15b and 15c.[1] The prior existence of an identical hardware arrangement also explains why, when respondents applied to the Patent Office, they did not say that their invention was a novel hardware arrangement but instead summarized it as: "A model-independent instruction in firmware [that] is provided

[1] Respondents contend (Resp. Br. 39–40) that the government's reliance on the Carre application and Coulter patent is improper under Rule 21.1a of the Rules of this Court, because that reliance raises issues concerning the novelty of their claimed invention not fairly included within the question presented in the petition. But it is respondents who have raised the issue of the novelty of their invention as an alternative ground for upholding the decision below (Resp. Br. 1, 13, 30, 33). Although it is permissible for them to do this without filing a cross-petition, see *United States* v. *New York Telephone Co.*, 434 U.S. 159, 166 n.8 (1977), they cannot legitimately object to the Commissioner's reliance, in response to that argument, on the patent applications of Coulter and Carre, of which they were concededly aware and which they acknowledged in their application (Resp. Br. 38–39; J.A. 25, 128). Indeed, they admitted to the patent examiner that the Coulter patent's "Figures 1–14h [*sic*, should be 14i] are identical" to respondents' corresponding figures (J.A. 136–137).

to change, upon execution, information in the system base which is located in both main memory and internal scratch pad registers" (J.A. 24; see J.A. 27).

2. Two of respondents' amici (Los Angeles Patent Law Ass'n Br. 9–10; Applied Data Br. 12–15), and perhaps respondents (Resp. Br. 33–34), further argue that the execution of respondents' novel microprogram in a conventional computer creates structural changes that result in a new machine. The running of the program supposedly does this by changing the computer's internal physical characteristics by, for example, enabling electronic switches to connect or disconnect various stuctures of the computer. Although patent law has recognized that a new machine might be created from old hardware elements (cf. *United States* v. *Adams*, 383 U.S. 39 (1966)), the Court has never recognized what in effect is a doctrine of transitory novelty. The mere execution of a novel microprogram in an old hardware combination creates no new physical structure. The hardware both before and after execution of the microprogram is the same. Only the electrical state of the circuitry changes during the running of the program. This change during the program run is thus transitory, not permanent, and does not turn an otherwise old machine into something that is new. See *In re Stubbs*, 58 F.2d 447 (C.C.P.A. 1932) (concrete pavement in uncured state not patentable); *Ex parte Howard*, 328 Off. Gaz. Pat. Office 251, 1924 Dec. Com. Pat. 75, 76 (1922) (claim to glass in molten state not patentable). Were it otherwise, a hand calculator would be patentable as a new machine each time a user placed a new constant into the calculator's memory, a telephone switching system would be pat-

entable as a new machine each time it diverted a call to a distant place over an alternative route not used before, and a television set would be patentable as a new machine each time it was tuned to a new channel not broadcasting when the television set was manufactured. Plainly, 35 U.S.C. 101 cannot be so read.[2]

3. Respondents and their amici contend that the Board has not correctly analyzed the claims.[3] They say that the Board erred by importing considerations of novelty into a Section 101 rejection (Resp. Br. 19, 22; American Patent Law Ass'n Br. 4; Halliburton Br. 8) and by identifying respondents' invention as a computer program when none was claimed (Resp. Br. 7; American Patent Law Ass'n Br. 6; Los Angeles Patent Law Ass'n Br. 8). The Board, however, followed *Parker* v. *Flook*, 437 U.S. 584, 594 (1978), in determining that the claims recited an unpatentable, albeit novel, algorithm for use in a digital computer and that, considered individually or as a whole, everything else

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[2] It has been suggested that had respondents hard-wired their microprogram they could have patented their invention (Resp. Br. 37 n.106; Applied Data Br. 8-9; Los Angeles Patent Law Ass'n Br. 12-13; Halliburton Br. 5). Whether or not this is so, respondents are not claiming a hard-wired microprogram.

[3] To support their contention that the Patent Office has "misunderstood" what they have invented respondents refer to "substantive errors" made in the government's brief and petition (Resp. Br. 17; Resp. Br. App. 4a). These are supposedly "corrected," mostly without citation to authoritative sources, in appendices to respondents' main brief and brief in opposition to the petition (Resp. Br. App. 1a-4a; Br. in Opp. App. 1b-3b). But respondents' "corrections" merely evidence their disagreement with the government on the law, or on the conclusions to be drawn from the facts, and not on the facts themselves (*e.g.*, Resp. Br. App. 1a #1; Br. in Opp. App. 2b ¶¶ 2 & 3, 3b). We respond to the remaining technical points in the addendum to this brief.

in the claims was conventional (J.A. 202). Thus, respondents and their amici now seek to relitigate *Flook*.[4] They offer nothing, however, that was not previously argued in *Flook* and there is no reason to entertain their contentions for a second time in two years.[5] As for disclosure of a computer program, the examiner found that respondents' specification contained a "program implemented algorithm" (J.A. 151-152) and the Board concurred (*id.* at 202). These findings, which are confirmed by respondents' admissions (J.A. 141-142, 138, 155, 169), are amply supported in the record (see Pet. Br. 12-13 n.19; J.A. 27-28).

4. Finally, respondents (Resp. Br. 20-21) and their amici (Applied Data Br. 20-21; Los Angeles Patent

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[4] The American Patent Law Association contends (Br. 24) that the Board has misread *Flook* by not recognizing that it was the "*generality* of the subsequent *application*" of the newly-discovered principle that made Flook's discovery unpatentable. But the Court understood that Flook's invention was designed for use in catalytic conversion processes (437 U.S. at 585-586) and that the claims did not "cover every conceivable application of the formula" (*id.* at 586). The instant invention is if anything even more general in applicability than was Flook's. Respondents themselves stressed in their application that their novel "instruction in firmware" was "model-independent" (J.A. 27) and thus was not limited to the particular digital computer machine described in their claims (see Pet. Br. 5, 19-20 n.29).

[5] For example, respondents' contention (Resp. Br. 24-26) that the provision in Section 101 that the claimed discovery must be "new" excludes only laws of nature, physical phenomena, and abstract ideas "because they have always existed," is inconsistent with the analysis in *Flook*, *supra*, 437 U.S. at 592-593. It is also inconsistent with the legislative history. S. Rep. No. 1979, 82d Cong., 2d Sess. 6 (1952); H.R. Rep. No. 1923, 82d Cong., 2d Sess. 7 (1952). See also *In re Bergstrom*, 427 F.2d 1394, 1401 (C.C.P.A. 1970); *In re Waldbaum*, 457 F.2d 997, 1003 (C.C.P.A. 1972).

Law Ass'n Br. 6; Halliburton Br. 3–4; American Patent Law Ass'n Br. 5) contend that for its own convenience the government here seeks a per se rule that all programmed machines, or even "computer related inventions" (Resp. Br. 21), are unpatentable. We have never contended, however, that a new digital computer, or a computer related invention, is unpatentable when it involves an inventive novelty in its structure or in its type or arrangement of hardware. We do ask this Court to reaffirm that if the only novelty in a claimed digital computer or other claimed invention consists of a programmed algorithm there is no patentable invention. *Parker* v. *Flook*, *supra*, 437 U.S. at 594.

For the reasons stated herein and in our main brief, the judgment of the Court of Customs and Patent Appeals should be reversed.

Respectfully submitted.

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ADDENDUM

1. Contrary to petitioner's statement (Pet. 5 n.7; Pet. Br. 4 n.7, 20 n.30), respondents maintain that the PROM described in their specification ("a 9K bipolar integrated circuit programmable read-only memory (PROM) mixed with read/write random access store (RAM)" (J.A. 61)) is not reprogrammable (Resp. Br. App. 1a–2a #2; see Br. in Opp. 1b ##1, 2). But memory units of the same bipolar type as respondents' that are capable of being reprogrammed in the field were patented and in use before respondents' application was filed. See, *e.g.*, U.S. Patent 3,662,351 to Ho, *et al.*, patented May 9, 1972, filed Mar. 30, 1970 (abstract and col. 6, line 60); U.S. Patent 3,717, 852 to Abbas, *et al.*, patented Feb. 20, 1973, filed Sept. 17, 1971 (abstract and col. 3, lines 1–9; col. 8, lines 38–40). And see Ho and Maley, "Latent Image Can Provide Chips With Built-In Control Memories," *Electronics* 82–83 (Aug. 16, 1971). Respondents do not say why they have included in their specification hardware of a type that permits such reprogramming if their PROM cannot be reprogrammed (see Pet. Br. 20 n.30). Moreover, although we twice noted that respondents' specification claims their PROM can be "reloaded" (J.A. 60; Pet. 5 n.7; Pet. Br. 20 n.30), respondents have failed to explain to the Court what this means if it does not mean that their PROM can be reprogrammed in the field.

2. The switch system base instruction is not, as respondents contend, "hardware incorporated into respondents' computer" (Resp. Br. App. 2a–3a #3; cf. Pet. Br. 4–5 & n.8). Respondents told the Patent Of-

fice that the instruction includes an operation code which "is similar to the operation code of any instruction and indicates the operation to be performed" (J.A. 78).

3. Respondents (Resp. Br. App. 2a–3a, ## 3, 4) have interpreted the word "user" in petitioner's brief (at 2–5) to mean only the software programmer who seeks to get data out of the computer (*i.e.*, the applications programmer). We meant "user" to include the systems programmer who writes programs regulating the computer's internal operations.

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